Forecasting Chaos in a Toy Climate
Ashley McKhann

In this research, we attempt to further the capabilities of climate and weather prediction by forecasting the future state of a toy climate analogous to the Lorenz system. Temperature data, collected from a computational fluid dynamics simulated thermal convection loop, is fit with a set of three differential equations using Eureqa, a tool for inferring natural laws from freeform data. Several forecasts made using the optimal differential equations are compared against a verifying set of temperature data from the system so that the accuracy of the forecast model can be evaluated. The results are yet to be determined, but the hope is to discover reasonably accurate, low-dimensional prediction equations which model the physical laws that govern this system.